SENT VIA FEDERAL EXPRESS

April 8, 2020

Division of Solid and Hazardous Waste
New Jersey Department of Environmental Protection
401 East State Street
PO Box 420, Mail Code 401-02C
Trenton, New Jersey 08625

Re: Quarterly Progress Report – First Quarter 2020
Disruption Approval No. LCA180001
IAOC C1 Ground Water Remediation Project
Former Tank 319 Waterfront Landfill Area (IAOC C1) – Block 586, Lot 17
Bayway Refinery Complex
1400 Park Avenue
City of Linden, Union County, New Jersey
Preferred ID: Exxon SLF 132708

To Whom it May Concern,

On behalf of ExxonMobil Environmental and Property Solutions Company (ExxonMobil), Kleinfelder, Inc. (Kleinfelder) is submitting this Quarterly Progress Report in accordance with Sanitary Landfill Major Disruption Approval No. LCA180001. This approval was obtained in support of the construction of the New Jersey Department of Environmental Protection (NJDEP) approved remedial actions for ground water in the areas known as the Former Tank 319 Waterfront Landfill Area (Investigative Area of Concern [IAOC] C1) and the Waterfront Area (IAOC C2) at the Bayway Refinery Complex (BRC) in Linden, New Jersey.

Please note that on December 2, 2019, the NJDEP approved ExxonMobil's Remedial Action Approach document for the IAOC C2 Waterfront Area (formerly referred to as the Fire Fighting Landfill Area), indicating that IAOC C2 shall be remediated as an area of historic fill, not a sanitary landfill under N.J.A.C. 7:26-2A. A copy of this approval letter is enclosed as Attachment 1 for reference. As such, pending remedial construction activities in IAOC C2 (Block 586, Lot 6) are no longer subject to the requirements of Sanitary Landfill Major Disruption Approval No. LCA180001.

Introduction

The portion of the BRC known as IAOC C1 encompasses approximately 18 acres in total. While this entire area is referred to as the Former Tank 319 Waterfront Landfill Area, the area of historic waste deposition, or landfill limit, is bound by the gravel perimeter road within IAOC C1 and totals approximately 11 acres. The IAOC C1 Ground Water Remediation Project, which involves the construction of a ground water containment and control system, includes construction inside and outside of the landfill limits. Although construction activities were initiated in the fourth quarter of 2019, excavation work within the limits of the former landfill unit did not begin until late February 2020. As required by the Disruption Approval, the Bureau of Solid Waste Compliance and Enforcement was notified via telephone on February 20, 2020, prior to the initiation of excavation

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activities within the former landfill unit. This document serves as the first Quarterly Progress Report, and summarizes activities completed through March 31, 2020.

As outlined in the permit application and Disruption Approval, the primary components of the IAOC C1 Ground Water Remediation Project include:

- Construction of a steel sheet pile barrier wall between the border of IAOC C1 and Morses Creek;
- Installation of ground water recovery wells and ground water monitoring wells; and
- Installation of subsurface system conveyance piping to connect the recovery wells to the system equipment container, which will be located outside the limits of IAOC C1.

Progress Summary

The current status of the IAOC C1 Ground Water Remediation Project is summarized below. Figure 1, which is provided as Attachment 2, is a plan view of the IAOC C1 area that depicts the IAOC C1 boundaries, the limits of the former landfill unit, and the proposed locations of the ground water remedial action components listed above. Where applicable, the construction status of the various components is also highlighted or otherwise indicated on Figure 1. Figure 1 does not reflect as-built conditions. For reference, the information provided on Figure 1 reflects the status of all proposed ground water remedial action construction activities within IAOC C1, including activities within and outside of the landfill limits.

Activities initiated or completed through March 31, 2020 are summarized as follows:

- Clearing and grubbing within the limits of disturbance (LOD) shown on the plans is complete, and material stockpiles have been established.
- Soil erosion and sediment control (SESC) measures have been implemented in accordance with the certified SESC Plan (No. 2018-3391).
- Construction stormwater is being managed and the SESC measures continue to be maintained and inspected per the SESC Plan requirements, the certified Stormwater Pollution Prevention Plan (SPPP), and Individual Stormwater Permit Authorization No. NJ0297755.
- The IAOC C1 steel sheet pile wall, which is located outside of the limits of the former landfill, was installed in its entirety (approximately 575 linear feet). Following advancement, the tops of the sheets were cut to a consistent elevation just below existing grade and backfilled.
- Wells GMW-26, RW-C1, RW-C3, RW-C4, and RW-C5 were properly abandoned.
- Drilling was completed for all 12 proposed IAOC C1 recovery wells, identified as RW-C1R, RW-C3R, RW-C4R, RW-C5R, and RW-C6 through RW-C13.
- Drilling was completed for seven of the proposed ground water monitoring wells, including GMW-726 through GMW-731, and GMW-734.
- Trenching activities were initiated, with approximately 1,000 linear feet of shallow trenches excavated to depths of up to approximately 48 inches below current grade. Trench excavation depths vary and are designed to allow the top of the piping to be installed at a minimum depth of approximately 36 inches (i.e., the frost line) below final grade. The final grade takes into account cut and fill activities associated with the final cover system to be installed as part of the IAOC C1 Soil Remedial Action, which is to begin in 2021 and is permitted separately from the IAOC C1 Ground Water Remedial Action. Pipe bedding material was placed in a portion of the trenches, but no piping was installed during the first quarter of 2020.
- Construction dewatering has been completed on an as-needed basis, with recovered ground water transported to the BRC's onsite wastewater treatment plant. Stormwater that

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has contacted potentially impacted material (e.g., stormwater accumulating within the stockpile area) has also been recovered and transported to the wastewater treatment plant for treatment and disposal.

- Backfill materials have been imported, including sand, rock screenings, dense graded aggregate (DGA), and clean stone or gravel. All imported materials have met the NJDEP's clean fill requirements and have been sourced from licensed quarries. Documentation has been obtained from the quarries to certify that the materials were sourced from virgin materials/locations, free from contamination, and have not been subjected to discharges of hazardous substances at any time. Contractor quality control (QC) testing results have also been provided by the remedial contractor in accordance with project specifications. The fill material certifications, QC testing results, and weight tickets for each truck of material delivered to the site are maintained in the project files.

Closing

Construction is ongoing, with the next Quarterly Progress Report scheduled for submittal in August 2020. If there are any questions regarding the remedial construction progress summary presented herein or the proposed remediation activities, please do not hesitate to contact Matt Kuchta of Kleinfelder at mkuchta@kleinfelder.com or (609) 631-1831.

List of Attachments

Attachment 1 – December 2, 2019 NJDEP Approval Letter for the IAOC C2 Waterfront Area Remedial Action Approach

Attachment 2 – Figure 1: IAOC C1 Ground Water Remediation Project Summary as of March 31, 2020

Engineer's Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals under my supervision, I believe the submitted information is true, accurate and complete. Furthermore, I certify that all fill materials accepted at the site for any purpose were weighed and in compliance with the requirements outlined in the NJDEP's Fill Material Guidance for SRP Sites, and that all provisions and prohibitions of the disruption approval were complied with during disruption activities. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

4/8/2020

Matthew E. Kuchta
NJ P.E. License No. 24GE04844000

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Limitations

Kleinfelder performed the services for this project under the Enabling Agreement with Procurement, a division of ExxonMobil Global Services Company (signed on November 28, 2012). Kleinfelder states that the services performed are consistent with professional standard of care defined as that level of services provided by similar professionals under like circumstances. This report is based on the regulatory standards in effect on the date of the report. It has been produced for the primary benefit of ExxonMobil Global Services Company and its affiliates.

Copy: M. Forlenza – ExxonMobil (electronically)
B. Conetta – USEPA (electronically)
C. Zielinski – NJDEP (electronically)
M. Renzulli – LSRP (electronically)
D. LaMond – Phillips 66 (electronically)
R. Snyder – GHD (electronically)

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ATTACHMENT 1

December 2, 2019 NJDEP Approval Letter for the IAOC C2 Waterfront Area Remedial Action Approach

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
Mail Code 401-05F
P.O. Box 420
Trenton, New Jersey 08625-0420
Telephone: 609-633-1455

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

December 2, 2019

Maureen Forlenza
ExxonMobil Environmental and Property Solutions Company
1400 Park Ave. Building 7
Linden, NJ 07036

RE: Bayway Refinery – Remedial Action Approach IAOC C2 Waterfront Area dated July 24, 2019
1400 Park Ave.
Linden, Union
PI #: 008282
Activity Number: RPC000002

Dear Ms. Maureen Forlenza:

The New Jersey Department of Environmental Protection (Department) has completed a review of the Remedial Action Approach (RAA) IAOC C2 Waterfront Area dated July 24, 2019, submitted pursuant to the Administrative Consent Order (ACO), the Site Remediation Reform Act (N.J.S.A.58:10C-1 et seq.), the Administrative Requirements for the Remediation of Contaminated Sites (N.J.A.C 7:26C), and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E. The Department has determined that the RAA IAOC C2 Waterfront Area is in compliance with the Technical Requirements for Site Remediation, N.J.A.C. 7:26E and other applicable requirements. The Department hereby approves the RAA IAOC C2 Waterfront Area, effective the date of this letter, with the following summary and comments.

The July 2019 RAA IAOC C2 Waterfront Area presents information to gain Department concurrence to evaluate IAOC C2 for future remedial action as an Environmentally Sensitive Natural Resource (ESNR) rather than as a landfill that would require closure in accordance with New Jersey Solid Waste Regulations.

The information presented indicates that IAOC C2 is an area that contains deposited fill materials including anthropogenic components such as construction debris and petroleum-contaminated materials, emplaced over naturally deposited soils and meadow mat, that raised the land surface elevation and simultaneously filled in wetlands along the Arthur Kill.

Based on the information provided, the material in IAOC C2 meets the definition of historic fill as described in N.J.A.C. 7:26E-1.8. Therefore, the Department concurs that IAOC C2 is not a sanitary landfill, and future remedial actions at the site do not require approvals under N.J.A.C.

7:26-2A. The remedial approach shall follow the Technical Requirements for Site Remediation regulations and guidance for risk assessment and management as an ESNR.

Comments

1. The portion of IAOC C2 that is subject to human health-based remediation standards and criteria would be the "DEVELOPED" northern portion identified on Figure 2 Habitat Map. The Department is amenable to remediating the "DEVELOPED" northern portion and any other portion of IAOC C2 Waterfront Area subject to human health-based remediation standards and criteria pursuant to N.J.A.C. 7:26E, N.J.A.C. 7:26D, and associated technical guidance.

2. Page 1 of 7, second paragraph – This paragraph indicates that in previous reports IAOC C2 was referred to as "Waterfront Firefighting Area Landfill". The Ecological Risk Assessment (ERA) shall address Per- and Polyfluoroalkyl Substances (PFAS). For data evaluation, the perfluorononanoic acid (PFNA, cas # 375-95-1) groundwater data should be compared to the NJ groundwater quality standard (GWQS) of 0.01 ug/l. Perfluorooctanoic acid (PFOA, cas # 335-67-1) and perfluorooctance sulfonate (PFOS, cas # 1763-23-1) surface water data should be compared to the ecological screening criteria (ESC) of 880 ug/l and 140 ug/l, respectively (State of Michigan aquatic life final chronic values, FCVs, for surface water). PFAS data, for which standards/criteria are not available, will be considered for non-regulatory, informational purposes, and should be addressed in an Uncertainty Section. Depending on the results, more rigorous evaluation may be necessary (e.g., sediment pore water evaluation; toxicity testing).

3. Figure 3 – This figure displays all the soil and sediment sample locations. Based on the information provided, there is contamination of groundwater onsite, potentially affecting the Arthur Kill. Sediment, porewater, and surface water (0-6 inches above sediment) shall be collected as part of the ERA to address this pathway. It is strongly recommended to have at least five (5) sample locations along the river including a sample location in the mudflat at the south portion of the site.

Pursuant to the Proposed Path Forward section of the RAA IAOC C2 Waterfront Area, ExxonMobil shall complete the terrestrial and aquatic ERAs for IAOC C2 Waterfront Area, which shall include the above information requested in Comments 2 and 3.

Thank you for your cooperation in this matter. If you have any questions, call Charles Zielinski at (609)292-0848, or email at Charles.Zielinski@dep.nj.gov.

Sincerely,

Charles E. Zielinski
Bureau of Case Management

cc: Charles Zielinski, NJDEP
Benny Conetta, USEPA via electronic mail
Deborah LaMond, Phillips 66 via electronic mail
Michael Renzulli, LSRP via electronic mail
Paul Lucuski, Kleinfelder via electronic mail
John Ruhl, NJDEP via electronic mail
Allan Motter, NJDEP via electronic mail
Iman Olguin-Lira, NJDEP via electronic mail
Nicole Kozlowski, NJDEP via electronic mail
Victoria Goldman, NJDEP via electronic mail
Sanjay Shah, NJDEP via electronic mail

ATTACHMENT 2

Figure 1 – IAOC C1 Ground Water Remediation
Project Summary as of March 31, 2020

CAD FILE: C:\pwworking\kleinfelder\pw01\kleinfelder_smackan#01768190\1_GW_PROJECT SUMMARY.dwg LAYOUT: 6 OVERALL SITE PLAN
PLOTTED: 4/7/2020 11:09 AM BY: shayne mckean

MORSES CREEK

IAOC C1 BARRIER WALL

EXISTING GRAVEL ACCESS ROAD (TYP.)

EXCAVATED PIPING TRENCH (TYP.)

PROPOSED ABOVE-GRADE SYSTEM PIPING

PROPOSED ABOVE-GRADE ELECTRICAL CONDUIT

10 YEAR FLOOD ELEVATION (TYP.) ELEV. 8.5 FT

STOCKPILE/SPOILS MANAGEMENT AREA

PROPOSED BELOW-GRADE HYDRAULIC CONTROL SYSTEM PIPING TRENCH (TYP.)

INTRAREFINERY PIPELINES

CONRAIL RAIL ROAD TRACKS

SOUND SHORE BRANCH (C.R.R. OF NEW JERSEY)
BLOCK 586
LOT 10

GMW-729 GMW-728 GMW-727 GMW-726 GMW-730 GMW-731 GMW-732 GMW-733 GMW-734 GMW-735 GMW-736 GMW-779 GMW-780 GMW-26R

RW-C9 RW-C8 RW-C7 RW-C6 RW-C3R RW-C10 RW-C11 RW-C1R RW-C12 RW-C4R RW-C13 RW-C5R

IAOC C1

BLOCK 586
LOT 17

IAOC C3

IAOC C2

LEGEND

- IAOC BOUNDARY
- LANDFILL LIMIT
- LOD — LOD — LIMIT OF DISTURBANCE
- EXCAVATED PIPING TRENCH (AS OF MARCH 31, 2020)
- PROPOSED BELOW-GRADE HYDRAULIC CONTROL SYSTEM PIPING TRENCH
- INSTALLED SHEET PILE BARRIER WALL (AS OF MARCH 31, 2020)
- CONSTRUCTED STOCKPILE/SPOILS MANAGEMENT AREA (AS OF MARCH 31, 2020)
- INSTALLED RECOVERY WELL (AS OF MARCH 31, 2020)
- INSTALLED GROUNDWATER MONITORING WELL (AS OF MARCH 31, 2020)
- PROPOSED GROUNDWATER MONITORING WELL (AS OF MARCH 31, 2020)

NOTES:

1. APPROXIMATE EXTENTS OF CONSTRUCTION COMPLETED THROUGH MARCH 31, 2020 ARE DEPICTED. FIGURE DOES NOT DEPICT FINAL AS-BUILT DETAILS.
2. VEGETATION CLEARING WAS COMPLETED TO FACILITATE THE WORK.
3. SOIL EROSION AND SEDIMENT CONTROL (SESC) MEASURES INCLUDING SILT FENCE, COMPOST FILTER SOCKS, HAY BALES, AND ROCK CONSTRUCTION ENTRANCES WERE INSTALLED PER CERTIFIED SESC PLAN NO. 2019-3391 - SESC MEASURES NOT SHOWN.

KLEINFELDER
Bright People. Right Solutions.

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REVISIONS

REV	DESCRIPTION	DSN DWN	CHK APP	DATE

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 50 140 210

SCALE: 1" = 50' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

IAOC C1 GROUND WATER REMEDIATION PROJECT SUMMARY AS OF MARCH 31, 2020

IAOC C1 GROUND WATER REMEDIATION
BAYWAY REFINERY COMPLEX
LINDEN, NEW JERSEY

ExxonMobil
Environmental and Propery Solutions

ISSUED FOR PERMITTING

PROJECT NO.	20192932.001A
ISSUE DATE	4/7/2020
CURRENT REVISION	-
DESIGNED BY	SMM
DRAWN BY	SMM
CHECKED BY	MEK
APPROVED BY	MEK

FIGURE 1

SHEET 1 of 1